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UNITED STATES DEPARTMENT OF AGRICULTURE
 AGRICULTURAL RESEARCH ADMINISTRATION
 BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE
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In cooperation with State, Federal and Other Agencies

COTTON INSECT CONDITIONS FOR WEEK ENDING AUGUST 26, 1950
 (Thirteenth Cotton Insect Survey Report for 1950)

Shortages of insecticides needed for the control of the cotton leafworm, boll weevil, and bollworm continue in northern and western Texas and in Oklahoma, and there are still some shortages of insecticides for boll weevil control in parts of Arkansas, northern Alabama, and in the piedmont section of the Carolinas.

"Chemical Defoliation for Controlling Cotton Insects: Tests of chemical defoliation of cotton indicated that this treatment controls insects, improves the grade of fiber, increases the efficiency of mechanical cotton harvesting, and reduces the labor required for hand picking. In experiments in Mississippi, Texas, and Arizona dusting with 10 to 20 pounds per acre of calcium cyanamide, a commercial nitrogenous fertilizer, caused complete defoliation within a few days when moisture was abundant and the plants were succulent, but poor defoliation of water-stressed plants. Defoliation causes the small bolls and squares to shed and the mature bolls to open promptly and uniformly without a reduction in staple strength. This checks boll weevil breeding, prevents staining of lint by aphids, and leafworms, permits all the crop to be picked at one time by hand or mechanical harvesters, reduces the trash, and improves the grade of lint." (Report Chief of Bureau of Entomology and Plant Quarantine, Fiscal Year 1944.)

Early clean up of fields important - Attention is directed to the statement in last week's report on the importance of stalk destruction. It is urged that this be emphasized by all.

Pink bollworm: For the first time, this issue of the Cotton Insect Survey Report makes mention of the pink bollworm. The statement is included because of the desirability of appraising all interested in a serious situation which confronts cotton production.

INSECTICIDES
 AND EQUIPMENT FOR APPLYING THEM

Texas: C. B. Spencer, Agricultural Director, Texas Cottonseed Crushers' Association, wrote on August 24 that distributors of insecticides needed for the control of the cotton leafworm were having difficulty in obtaining the needed insecticides in the following localities: Abilene, Lubbock, Lamesa, Plainview, Quanah, Stamford, Sweetwater, Vernon, and Wichita Falls. Earlier in the month K. P. Ewing, Waco, reported shortages of insecticides needed for the control of the cotton leafworm, bollworm, boll weevil, cotton aphid, and cotton fleahopper in various counties including: Crosby, Delta, Ellis, Fisher, Floyd, Garza, Haskell, Hockley, Hunt, Kaufman, Lamb, Lynn, Red River, Runnels, and Taylor Counties.

Oklahoma: C. F. Stiles wrote on August 28: "I believe that our insecticide situation has eased a little bit, but if the leafworm outbreak develops as it is starting, there will not be enough insecticides west of the Mississippi River to control them. I do not know when I have ever seen little leafworms as numerous as they are in some fields now."

Alabama: Glynn B. Wood and Clifford D. Porterfield reported on August 26: "Farmers in the northern counties are using lots of calcium arsenate because this is the

only insecticide they can get. No reports of a complete shortage were heard."

H. G. Pinkston, County Agent, reported: "Boll weevils numerous on cotton throughout Cullman County. Insecticides are not too plentiful but dealers are able to supply needed materials fairly well."

Excerpts from Weekly Cotton Weather Bulletin issued by the Weather Bureau, U. S. Department of Commerce, New Orleans, Louisiana, August 22;

Weather and Cotton Over the Belt: Typical late-summer weather. Cotton has improved some in the southern part of the Belt but further deteriorated in Oklahoma. Condition now mostly fair in the Carolinas and mostly good over remainder of Belt except Oklahoma and southeast Missouri.

Texas: Excellent conditions for cotton picking south and dusting north and northwest. Cotton picking getting started central; weevil infestation heavy and widespread north, northeast where weather caused rank growth and control measures not effective.

Oklahoma: Rains hindered cotton spraying. While cotton spraying continued as weather permitted some discontinued because of poor yield prospects, severe insect damage continued, weather generally favorable activity.

Arkansas: Cotton fruiting, blooming in top; first bales ginned southern section.

Louisiana: Cotton begun opening north. Picking underway south; boll weevils continued damaging especially upper Delta.

Mississippi: Poisoning for boll weevils active but most effective dry western part; cotton opening central; south; picking south.

Tennessee: Cloudy weather, heavy rainfall made insect control on cotton difficult. Boll weevil increasing some southern counties.

Alabama: Weather favorable for checking weevils. Picking active south.

Georgia: Cotton fruiting well, opening central and south; picking started south.

South Carolina: Fairly active picking becoming general south; beginning open north; weather favorable checking weevils but still damaging.

North Carolina: Boll weevil infestation still heavy although much dusting possible during week.

Arizona: Stink bug infestation continues Maricopa; bollworms Santa Cruz, Graham causing some injury; control measures all areas.

New Mexico: Cotton advancing nicely southeast, dusting for insects continuing.

BOLL WEEVIL

Georgia: Boll weevil migration is now in progress in the southern Piedmont and the major portion of the crop in this area will need protection into September. In fields where insecticides are being applied properly satisfactory control is being obtained. Where poisoning has been discontinued the infestation is increasing rapidly. Weevils were found in all of the 99 fields examined in 33 northeastern and northwestern counties. The infestation ranged from 1 to 25% punctured squares

in 53 fields; from 26 to 50% in 27 fields; and more than 50% of the squares were punctured in 14 fields.

P. M. Gilmer wrote on August 28: "The middle and upper Piedmont will not be insect safe until well into September, and I would almost say into October in the northern counties."

Alabama: The average infestation in 63 fields in 13 northern counties was 52% punctured squares as compared with 41% last week. The infestation ranged from 18 to 24% in 3 fields; from 26 to 50% in 27 fields; from 51 to 75% in 29 fields; and more than 75% of the squares were punctured in 4 fields.

Mississippi: Most of the crop is mature in the Delta. Only a few records were made in Bolivar and Washington Counties where control measures had been practiced. The highest infestation records were made in check plots or adjacent to unpoisoned fields. The average infestation in 29 fields was 27% punctured squares. The infestation ranged from 1 to 25% in 14 fields; from 26 to 50% in 11 fields, and more than 50% of the squares were punctured in 4 fields.

Missouri: V. F. Burk, Extension Entomologist, wrote on August 21: "As yet we have practically no boll weevils in the principal cotton section of our State, except a little around Poplar Bluff, Butler County, and west of there."

Louisiana: Cotton insects continue to cause serious damage to cotton that is still fruiting and is not properly protected. The average boll weevil infestation in 99 fields in Madison Parish was 36% punctured squares as compared with 38% last week and 34% two weeks ago. The infestation ranged from 1 to 25% in 35 fields; from 26 to 50% in 42 fields; and more than 50% of the squares were punctured in 22 fields. In the examination of 362 fields in East Carroll Parish, weevil infestation averaged 42% punctured squares as compared with 31% last week and 40% two weeks ago. The infestation ranged from 1 to 10% in 23 fields; from 11 to 25% in 77 fields; from 26 to 50% in 140 fields, and more than 50% of the squares were punctured in 129 fields. Counts were made on 27 farms in Caddo Parish, finding an average boll weevil infestation of 24%. In the examination of 13 farms in Bossier Parish the average infestation was 20% punctured squares.

Arkansas: Charles Lincoln, Extension Entomologist, reported on August 28: "All fields in southern and western Arkansas are infested. Weevils are extremely abundant. Most fields under regular dusting schedules still need boll protection. Some young cotton is still making.

"In eastern and northeastern Arkansas there are still clean fields. Infestations are increasing and there are local migrations. Some fields require boll protection and others are still making. Clean fields should be scouted carefully for weevils migrating from infested fields. There is no general migration. As cotton matures general migration is inevitable but we have delayed it for at least two weeks."

The average boll weevil infestation in 44 fields in 6 southeastern counties was 53% punctured squares as compared with 53% last week and 42% two weeks ago. The infestation ranged from 1 to 25% in 15 fields; from 26 to 50% in 8 fields; and more than 50% of the squares were punctured in 21 fields. In Jackson and Moore Counties the infestation in 243 fields averaged 15%. No punctured squares were found in 13 fields. The infestation ranged from 1 to 10% in 97 fields; from 11 to 25% in 83 fields; from 26 to 50% in 45 fields; and more than 50% of the squares were punctured in 5 fields.

Texas: The average weevil infestation in McLennan and Falls Counties was 85% punctured squares as compared with 62% last week. Fruiting fields are very scarce and infestations are extremely heavy in these fields.

Oklahoma: The Oklahoma Crop and Weather Bulletin issued in Oklahoma City on August 22 states: "More rains and cool temperatures have further aggravated the serious cotton insect infestation problem. Some farmers have discontinued poisoning because of extremely poor yield prospects in many fields. However, most growers are still spraying or dusting the plants as weather permits. Leafworms, boll weevil, and bollworms are still present in very large numbers and damaging the crop severely."

C. F. Stiles, Extension Entomologist, reported on August 26: "The square infestation is very heavy over most of the State. Fields in only a few of the northwestern cotton producing counties escaped heavy damage. Never before have the cotton farmers in the heavy cotton producing counties of southwestern Oklahoma experienced such damage by the weevil."

The average infestation in 139 fields in 20 counties was 63% punctured squares as compared with 46% last week. No weevils were found in one field in Harmon County. Harmon County is the extreme southwestern county of the State. The infestation ranged from 51 to 96% in 110 fields; from 26 to 50% in 12 fields; and in 17 fields less than 25% of the squares were punctured.

COTTON LEAFWORM

Oklahoma: C. F. Stiles, Extension Entomologist, reported on August 26: "Practically all fields in central and western Oklahoma that have not been poisoned since the heavy rains are now infested with small leafworms. They range in size from 1/16 inch to 1/2 inch in length. On some of the leaves you can find as many as five small worms and several unhatched eggs. Unless some control measures are used, heavy damage may result for the small bolls and squares will be destroyed. For control, use calcium arsenate, Paris green and lime, arsenate of lead, toxaphene or benzene hexachloride."

Texas: Cotton leafworms continue to cause serious damage in northern, eastern and western areas.

New Mexico: Cotton leafworms continue to cause damage in some areas in the Pecos and Mesilla Valleys and insecticides are being applied for their control. Leafworm counts made in 30 fields in the Pecos Valley showed a considerable increase over the preceding week.

Arizona: Light infestations of the cotton leafworm are now general over the Safford and Santa Cruz Valleys. Leafworms have not been found in any field in sufficient numbers to require control.

Arkansas: Charles Lincoln, Extension Entomologist, reported on August 28: "Cotton leafworms are still being reported. A few fields require control. Heavy dusting for boll weevil appears to have prevented a leafworm outbreak."

Missouri: V. F. Burk wrote on August 21: "The leafworm is moving in, in small numbers. I noticed one field that would average about 2 worms to the stalk of cotton."

Mississippi: Light cotton leafworm damage was noted in one field near Greenville on

August 19 in unpoisoned cotton. The infestation covers 80 or 90 acres.

THE PINK BOLLWORM SITUATION

Pink bollworm infestation, greatly intensified in the current crop in south Texas, is creating a serious menace of widespread dispersal to new areas.

Pink bollworm infestation in the regulated area of south Texas has developed to very serious proportions in this year's cotton crop. Inspection of bolls and of gin trash show all counties in the south Texas regulated area to be infested. The heaviest infestation was found in the Lower Rio Grande Valley and Coastal Bend Counties, with a much lighter degree of infestation in the extreme eastern part of the regulated area. Cameron County showed infestation to be about 29 times as heavy as 1949 and Nueces County about 3600 times as heavy. Many of the counties in the northern and eastern sections of south Texas were not infested last year, but show many pink bollworms this season. Commercial damage was inflicted in parts of Cameron and Nueces Counties, running up to approximately 50 percent in the worst fields in Nueces County. Practically all remaining green bolls in south Texas counties are now infested and recent counts show as many as 8 to 10 pink bollworms per infested boll in some fields. So far, the Laguna area of Mexico is the only extensive cotton growing region in North America where insecticides are being used in pink bollworm control. Excellent results are being obtained through use of insecticides as a supplement to cultural practices in that region.

The carry over of pink bollworm in south Texas is in direct relation to earliness or lateness of cotton stalk destruction. There was a tremendous carry over from the 1949 to the 1950 crop season by reason of exceptionally late field cleanup in the Coastal Bend Area of Texas, ^{and to a less extent in the Lower Rio Grande Valley resulting in} heavy buildup described above. Weather conditions have resulted in quick maturity of the crop in south Texas during 1950 and as of today, August 30, it is believed the Lower Rio Grande Valley Counties will complete stalk destruction by midnight, August 31. Much of Nueces and San Patricio County cotton acreage has already been destroyed, as compared with practically none on this date last season. All of these factors should tend to make considerable reduction in pink bollworm carry over into the 1951 crop as compared with this season. There is some late planted cotton in the counties of Brooks, Duval, Starr, and Jim Hogg which will present a serious problem if rains occur early enough to set a crop as drought conditions so far have prevented much fruiting.

There remains the hazard of spread during the current crop season because of this widespread increase of infestation. As cotton matures in south Texas and, as indicated, much has already matured and stalks have been destroyed, pink bollworm moths will undoubtedly be spread by wind currents. It is believed many additional counties in south-central and central Texas will be in the direct line of spread of the pink bollworm. In fact, infestations have already been found in Gillespie, Lavaca and Fayette Counties after only a day or two of inspection outside regulated areas.

The Bureau, in cooperation with the State Department of Agriculture, proposes to take all steps possible to prevent artificial dissemination of the pink bollworm through movement of cottonseed and other cotton products capable of carrying the pink bollworm. Thousands of cotton pickers from south Texas have been inspected upon leaving the heavily infested areas, and many pink bollworms intercepted in the confiscated seed cotton. Cotton growers in areas not known to be previously infested with pink bollworm or in lightly infested pink bollworm areas should require cotton pickers to clean their sacks of seed cotton and bollicies upon arrival at their farm, and such material should be promptly burned.

Pink bollworms may be in immature stages in top crop green bolls and if growers, upon completion of harvest of the main crop, will immediately destroy by roller cutting and plowing under all cotton stalks and crop residues, there is a good opportunity to kill the pink bollworms in such material and prevent the incipient infestation from becoming an established one. It can not be too strongly urged upon growers to immediately destroy the cotton stalks and it is believed examination of the few green bolls on the plants in much of central and north Texas will reveal boll weevil and other damage to the extent that it will not be worthwhile to attempt to salvage these late bolls. Prepare for that 1951 crop by shortening the present growing season and establishing before frost a starvation period for pink bollworm and other insects. -- L. F. Curl - August 30, 1950

MISCELLANEOUS INSECTS

Alabama: Lepidopterous larvae continue to cause damage in some fields in the northern part of the State.

Spider mites were found in 18 of the 63 fields examined in 13 northern counties.

Missouri: V. F. Burk, Extension Entomologist, wrote on August 21: "We are having some trouble with red spiders. This is by far the most troublesome pest this year!"

Louisiana: The Department of Entomology Insect Pest Survey Service Leaflet No. 14-50, issued August 25, stated: "Cotton insects are still doing serious damage to cotton that is still fruiting and is not properly protected. The bollworm was of greatest concern to most growers. Heavy infestations were reported from localities throughout the State, especially from bottom land areas where the plants are still growing. Red spiders are general and doing some damage in many fields. Aphid infestations were reported from the Monroe area, especially on some fields which have been treated with aldrin dust."

Oklahoma: Practically all fields are now infested with bollworms. The infestations range from light to extremely heavy.

Texas: H. S. Johnson, Jr., collected thrips from cotton at San Benito, on March 30 to April 6-13, 1950 that were identified by J. C. Crawford as the onion thrips, Thrips tabaci Lind. The onion thrips probably cause more damage to cotton in southern Texas than any other species of thrips.

K. P. Ewing, L. F. Greer, and R. D. Rawls collected 52 lepidopterous larvae from cotton in the untreated check plot of Experiment No. 1 on the Capploman Farm, Honey Grove, Fannin County, on August 18. Fifty of these insects proved to be the bollworm, Heliothis armigera (Hbn.), and there were only 2 specimens of the tobacco budworm, H. virescens (Fabr.). (Determination by J. G. Franclemont.)

IRRIGATED COTTON OF THE SOUTHWEST

New Mexico: The cotton insect reports issued by L. H. Moore, Extension Entomologist, State College, in regard to conditions during the weeks ending August 19 and 26 contain much interesting information concerning cotton insects and the insecticides used for their control. It appears that in most of the cotton areas of the State the growers are finding it necessary to control the cotton leafworm, bollworm, and cotton aphid. The Lygus bugs and other hemipterous insects have not yet become abundant in the cotton fields except in the Mimbres Valley.

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